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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/936,601	12/13/2001	Noboru Yamada	10873.784USWO	7257

7590 03/02/2004

Merchant & Gould  
PO Box 2903  
Minneapolis, MN 55402-0903

EXAMINER
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FERGUSON, LAWRENCE D

ART UNIT	PAPER NUMBER
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1774

DATE MAILED: 03/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/936,601	<b>Applicant(s)</b> YAMADA ET AL.	
	<b>Examiner</b> Lawrence D Ferguson	<b>Art Unit</b> 1774	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 03 November 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9, 11-19, 22 and 23 is/are rejected.
- 7) ☒ Claim(s) 10 and 20-21 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Response to Amendment*

1. This action is in response to the amendment mailed November 3, 2003.

Claims 24-27 were cancelled rendering claims 1-23 pending in the application.

### *Claim Rejections – 35 USC § 103(a)*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-9, 11-19 and 22-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 0898273 in view of Goto et al. (U.S. 6,114,087).

EP '273 discloses an information recording medium comprising a substrate and a recording layer including a reversible phase change by irradiation provided above the substrate (page 2, lines 31-40) where the recording layer comprises Te, Ge, Sb and N (page 2, lines 38-40). EP '273 discloses the recording layer comprising crystallizing material and  $\text{GeTeSb}_2\text{Te}_3$  (page 4, lines 32-38). Ep '273 does not show molar ratio, ionic ratio, melting point or concentration. However, such molar ratio, ionic ratio, melting point and concentration are properties which can be easily determined by one of ordinary skill in the art. With regard to the limitation of the molar ratio, ionic ratio, melting

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point and concentration, absent a showing of unexpected results, it is obvious to modify the conditions of a composition because they are merely the result of routine experimentation. The experimental modification of prior art in order to optimize operation conditions (e.g. molar ratio, ionic ratio, melting point and concentration) fails to render claims patentable in the absence of unexpected results. All of the aforementioned limitations are optimizable as they directly affect the mechanical strength and durability of the recording media. As such, they are optimizable. It would have been obvious to one of ordinary skill in the art to make the recording medium with the limitations of the molar ratio, ionic ratio, melting point and concentration since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 USPQ 215 (CCPA 1980). EP '273 does not disclose a lattice defect.

Goto teaches a recording medium comprising a substrate and a recording film (abstract) having phase change capability comprising a crystalline structure and amorphous structure in some cases (column 5, lines 30-40) having a lattice defect (column 10, lines 5-10). Goto teaches the material comprises cubic structure(s) such as NaCl (column 9, lines 40-41) and Aluminum (column 10, line 27). EP '273 and Goto are analogous art because they are both directed to phase change recording media. It would have been obvious to one of ordinary skill in the art to include a crystal lattice defect comprising NaCl and Al because Nakamura teaches these features so that the components of the recording media are highly oriented and structured.

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4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Ohno et al. (U.S. 6,115,352) discloses an information recording medium comprising a substrate and a phase change type recording layer having a crystalline state and amorphous state (abstract). Additionally, Kitaura et al. (U.S. 6,432,502) discloses a recording medium having a substrate and a phase change layer changing in phase reversibly between crystalline state and an amorphous state (abstract).

5. Claims 10 and 20-21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### ***Response to Arguments***

6. Arguments made in regards to rejection made under 35 USC 103(a) as being unpatentable over EP 0898273 in view of Nakamura et al. (U.S. 5,738,927) are moot based on grounds of new rejection.

### ***Conclusion***

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lawrence Ferguson whose telephone number is (703) 305-9978. The examiner can normally be reached on Monday through Friday 8:30 AM

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– 4:30PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia Kelly can be reached on (703) 308-0449. Please allow the examiner twenty-four hours to return your call.

The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for

After Final communications. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-2351.



Lawrence D. Ferguson  
Examiner  
Art Unit 1774

CYNTHIA M. KELLY  
SUPERVISOR  
TELEPHONE (703) 308-0449

